

# Cosmic Times 1965 Glossary

**astronomical**

Deals with Astronomy

**astrophysics**

The part of astronomy that deals principally with the physics of the universe, including luminosity, density, temperature, and the chemical composition of stars, galaxies, and the interstellar medium.

**bandwidths**

The range of signal frequencies that can be carried on a communications channel.

**black body radiation**

Blackbody radiation is produced by an object that is a perfect absorber of heat. Perfect absorbers must also be perfect radiators. For a blackbody at a temperature  $T$ , the intensity of radiation emitted  $I$  at a particular energy  $E$  is given by Planck's law:

$$I(E,T) = 2 E^3 [h^2 c^2 (e^{E/kT} - 1)]^{-1}$$

where  $h$  is Planck's constant,  $k$  is Boltzmann's constant, and  $c$  is the the speed of light.

**celestial**

Relating to the sky or the heavens

**coma**

The nebulous envelope around the nucleus of a comet

**cosmology**

The astrophysical study of the history, structure, and dynamics of the universe

**cosmic ray**

Atomic nuclei (mostly protons) and electrons that are observed to strike the Earth's atmosphere with exceedingly high energies.

**culminating**

Coming to completion

**Cygnus A**

A radio source in the constellation Cygnus in the Northern Hemisphere

**electromagnetic spectrum**

The full range of frequencies, from radio waves to gamma rays, that characterizes light.

**emission**

The production of light, or more generally, electromagnetic radiation by an atom or other object.

**fledgling**

New or inexperienced

**fluorescing**

The emission of electromagnetic radiation, (especially visible light) stimulated by the absorption of incident radiation and lasting only as long as the incident radiation is continued.

**galaxy**

A component of our universe made up of gas and a large number (usually more than a million) of stars held together by gravity. When capitalized, Galaxy refers to our own Milky Way Galaxy.

**Holmdel Horn**

Radio antenna located in Holmdel, NJ used by Penzias and Wilson when they came across the cosmic microwave background radiation. The Horn Antenna is a National Historic Landmark

**infrared**

Electromagnetic radiation at wavelengths longer than the red end of visible light and shorter than microwaves (roughly between 1 and 100 microns). Almost none of the infrared portion of the electromagnetic spectrum can reach the surface of the Earth, although some portions can be observed by high-altitude aircraft (such as the Kuiper Observatory) or telescopes on high mountaintops (such as the peak of Mauna Kea in Hawaii).

**luminosity**

The rate at which a star or other object emits energy, usually in the form of electromagnetic radiation.

**magnitude**

The degree of brightness of a celestial body designated on a numerical scale, on which the brightest star has magnitude -1.4 and the faintest star visible without a telescope has magnitude 6. A decrease of one magnitude represents an increase in apparent brightness by a factor of 2.512; also called apparent magnitude.

**microwave**

Electromagnetic radiation that has a longer wavelength (between 1 mm and 30 cm) than visible light. Microwaves can be used to study the Universe, communicate with satellites in Earth orbit, and cook popcorn.

**NGC 3521**

A spiral galaxy in the constellation Leo

**NGC 972**

A spiral galaxy in the constellation Ares

**oscillating**

Swinging to and from a position

**oscillating universe**

A theory stating that the gravitational attraction of the mass within the universe will eventually slow down and stop the expansion of the universe eventually resulting in a 'Big Crunch' where all the matter in the universe will be contracted into a small volume of high density

**photographic plates**

Early photography used a light-sensitive emulsion of silver salts applied to a glass plate

**primordial**

Primordial matter refers to the matter in the universe that was first formed, and has been in existence since the existence of the universe itself.

**quasar**

An enormously bright object at the edge of our universe which emits massive amounts of energy. In an optical telescope, they appear point-like, similar to stars, from which they derive their name (quasar = quasi-stellar). Current theories hold that quasars are one type of AGN

**remnant**

Left over; a surviving trace or vestige

**radiation**

Energy emitted in the form of waves (light) or particles (photons)

**Scorpius**

A constellation named the Scorpion located in the Southern Hemisphere near Libra and Sagittarius .It contains the bright red star Antares

**spectrum (pl. spectra)**

A plot of the intensity of light at different frequencies. Or the distribution of wavelengths and frequencies.

**spherical galaxy**

A galaxy that has a shape similar to a sphere.

**Steady State Universe Model**

Model designed by Fred Hoyle and others wherein new material is created as the universe expands.

**telecommunications**

Telecommunication is the system by which auditory and visual information is transmitted by television, radio, or phone.

**wavelength**

The distance between adjacent peaks in a series of periodic waves. Also see electromagnetic spectrum.

**X-rays**

Electromagnetic radiation of very short wavelength and very high-energy; X-rays have shorter wavelengths than ultraviolet light but longer wavelengths than gamma rays.

**zenith**

the zenith at a given point is the local vertical direction pointing away from direction of the force of gravity at that location